L 3171-66   3

ACCESSION NR: AP5017038

at the epicenter of the explosion, A and B are constants, u_r is the horizontal component of ground dislocation, D is a constant which depends on the elastic properties of the medium, μ is the Lame coefficient, r is the distance from the epicenter of the explosion to the earth's surface, ϕ is the wave front, γ is the heat capacity of gas, and b is the velocity of the transverse wave. The formula

$$E_R(\Delta) = \frac{8\pi^3 c_R D p_s^3}{b^2 \mu} \left(\frac{a}{\gamma \gamma c_R} \right)^2 QB\left[I_1(\xi_0, \eta) + I_2(\xi_0, \eta) + I_3(\xi_0, \eta)\right]$$

was used for atmospheric explosions. These formulas show that the dependence of the energy $E_R(\Delta)$ on explosion parameters varies with the distance from the epicenter. The latter formula shows that for each atmospheric explosion, for each charge size and fixed epicentral distance, there is a particular explosion altitude at which the seismic energy observed at that distance is maximum. Orig. art. has: 5 figures and 22 formulas.   [ER]

ASSOCIATION: Akademiya nauk SSSR. Institut fiziki Zemli (Academy of Sciences SSSR. Institute of Physics of the Earth)   44.55

Card 3/4

L 3171-66

ACCESSION NR: AP5017038

SUBMITTED: 24Apr64

NO REF SOV: 005

ENCL: 00

OTHER: 001

SUB CODE: ES

ATD PRESS: 4033

Card 4/4

ACC NR: AP6036355   SOURCE CODE: UR/0387/66/000/011/0017/0028

AUTHOR: Kogan, S. Ya.

ORG: Academy of Sciences, SSSR, Institute of Physics of the Earth (Akademiya nauk SSSR, Institut fiziki Zemli)

TITLE: Brief review of theory of absorption of seismic waves. II

SOURCE: AN SSSR. Izvestiyga, Fizika Zemli, no. 11, 1966, 17-28

TOPIC TAGS: seismic wave, seismology, equation of state, wave propagation, absorption coefficient

ABSTRACT: Part I is published in the same issue of the source (Acc. No. AP6036354).
The second part is devoted to modern theories of absorption of seismic waves in real
media, namely Deryagin's elastic aftereffect theory, Lomnitz'es aftereffect equation,
and the theories of Gurevich, Futerman, Kolsky, Knopoff, and MacDonald. The feature
common to all these theories is that they attempt to explain the disparity between
the experimental data and the classical equations of state described in the first part
of the article. The advantages and shortcomings of each of the methods are briefly
described. It is pointed out in the conclusion that at present there is still no
regular and regress theory of absorption of seismic energy in a real medium, and that
only Gurevich's phenomenological theory agrees best with the observed experimental
data on the behavior of the coefficient of absorption with the frequency, depth, and
its dependence on the wave propagation velocity. Orig. art. has: 7 figures and 14
formulas.

Card 1/2   UDC: 534.222.2

ACC NR: AP6036355

SUB CODE: 08, 20/   SUBM DATE: 23Nov65/   ORIG REF: 002/   OTH REF: 008

Card   2/2

KOGAN, S.Ye.; FRUKHSHTEYN, R.I. (Kiyev)

Practices in the organization of the wage payment system for workers
in clothing enterprises. Shvein.prom. no.2:7-9 Mr-Ap '61.
(MIRA 14:4)

(Clothing industry)   (Wage payment systems)

KOGAN, S. Yu. [Kohan, S. IU.]

Planning in the clothing in^ stry according to the norms of
production costs. Leh. prom. no.4:36-40 O-D '64
(MIRA 18:1)

KOGAN, Sh.I.; KOSIKELOVA, Ye.N.

Advances in the field of studying lower plants. Izv. AN Turk. SSR.
Ser. biol. nauk no.5:33-35 '64.   (MIRA 18:2)

1. Institut botaniki AN Turkmenskoy SSR.

BONCH-BRUYEVICH, V L.; KOGAN, Sh.M.

Domain formation in semiconductors with negative differential
resistance. Fiz. tver. tela 7 no.1:23-27 Ja '65.

(MIRA 18:1)

1. Moskovskiy gosudarstvennyy universitet imeni Lomonosova i
Institut radiotekhniki i elektroniki AN SSSR.

KOGAN, Sh.M.; LIFSHITS, T.M.; SIDOROV, V.I.

Photoconductivity due to optical transitions between impurity
centers. Fiz. tver. tela 6 no.11:3294-3300 N '64.

(MIRA 18:1)

1. Institut radiotekhniki i elektroniki AN SSSR, Moskva.

KOGAN, Sh.M.; SANDOMIRSKIY, V.B.

Interaction between an ultrasonic wave and a beam of charged
particles. Fiz. tver. tela 6 no.11:3457-3463 N '64.

(MIRA 18:1)

1. Institut radiotekhniki i elektroniki AN SSSR, Moskva.

ANTONOV, Yu.; KOGAN, T.

Side by side with the physician. Sov. profsoiuzy 17 no.18:25-
26 S '61.   (MIRA 14:8)

1. Glavnyy vrach Moskovskoy gorodskoy klinicheskoy ordena
Lenina bol'nitse imeni Botkina (for Antonov).
                    (Moscow—Hospitals—Administration)
                    (Trade unions)

KOGAN, T. I.

Intensive polishing of hygroscopic crystals. Opt.-mekh.prom. 25
no.4:52 Ap '58.
       (Grinding and polishing) (Crystals)

(MIRA 11:10)

Author   KOZAN. T. Ia.
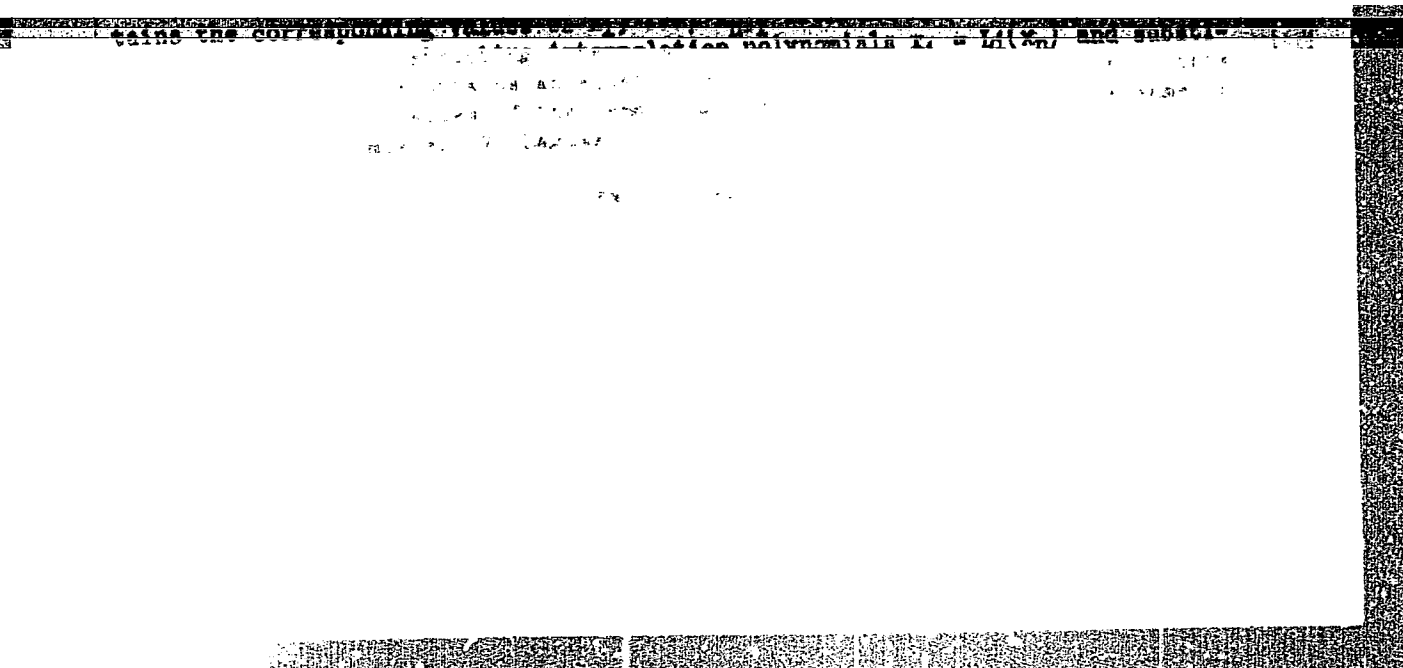
KOGAN, T.I.

Generalization of Newton's method for solving systems of nonlinear equations. Nauch. trudy TashGU no.208. Mat. nauki. no.23:98-103 '62.
(MIRA 16:8)

(Differential equations)

ACCESSION NR: AP4037258   S/0208/64/004/003/0545/0546

AUTHOR: Kogan, T. I. (Tashkent)

TITLE: Construction of iteration processes of high orders for systems of algebraic and transcendental equations

SOURCE: Zhurnal vy*chislitel'noy matematiki i matematicheskoy fisiki, v. 4, no. 3, 1964, 545-546

TOPIC TAGS: iteration process, algebraic equation, transcendental equation, linear functional system, Kramer rule, Newton method

ABSTRACT: The author shows how to combine two approximation methods to yield one of higher order under certain conditions. He generalizes this to combining n such processes and gives an example. Orig. art. has: 12 formulas and 1 table.

ASSOCIATION: none

SUBMITTED: 03Jul63   DATE ACQ: 09Jun64   ENCL: 00

SUB CODE: MA   NO REF SOV: 000   OTHER: 002

Card 1/1

KOGAN, T. M.

A. L. Rotinian, B. V. Drozdov and T. M. Kogan, " kinetics of the reaction of substitution on the Raney nickel powder and the nature of the activity of the skeleton catalyst. P. 610

Studies were made on the kinetics of the reaction $Ni + Cu^+ + \longrightarrow Cu + Ni^{+,+}$ on a nickel powder obtained by alkalising an aluminum-nickel alloy ("skeleton" catalyst). The assumption is expressed that the activity of the skeleton catalyst is connected with the presence in it of a large amount of hydrogen which makes it impossible for the thin surface to oxidise.

SO: Journal of Applied Chemistry (USSR) 21, No. 8, August (1948)

SMOLYANSKAYA, P.G.; KOGAN, T.M.

Photocolorimetric method for the determination of the activity of
adoniside. Med.prom. 14 no.2:46-48 F '60.   (MIRA 13:5)

1. Leningradskiy khimiko-farmatsevticheskiy institut i Leningradskiy
khimiko-farmatsevticheskiy zavod No.1.
              (COLORIMETRY)   (ADONIS)

SMOLYANSKAYA, P.G.; KOGAN, T.M.

Photocolorimetric method of determining the activity of adonis
extract. Med.prom. 14 no.3:42-44 Mr '60.   (MIRA 13:6)

1. Leningradskiy khimiko-farmatsevticheskiy institut i Lenin-
gradskiy khimiko-farmatsevticheskiy zavod No.1.
          (COLORIMETRY)   (ADONIS)

SMOLYANSKAYA, P.G.; KOGAN, T.M.

Photocolorimetric method for determining the glycosides in Adonis.
Med.prom. 14 no.4:41-42 Ap '60.   (MIRA 13:6)

1. Leningradskiy khimiko-farmatsevticheskiy institut i Lenin-
gradskiy khimiko-farmatsevticheskiy zavod No.1.
     (COLORIMETRY)   (ADONIS)   (GLYCOSIDES)

KOGAN, T. N.

USSR / Microbiology. Microbes Pathogenic for Man and   F-4
          Animals. Pathogenic Fungi and Actinomyces.

Abs Jour: Ref Zhur-Biol., 1958, No 17, 76859.

Author : Ariyevich, A. M.; Yanov, Ye. I.; Kogan, T. N.
Inst   : Not given.
Title   : Case of Yeast Pneumonia and Yeast Sepsis (Candid-
          asepsis) in Connection with Treatment by Antibiotics.

Orig Pub: Terapevt. arkhiv, 1957, 29, No 6, 38-43.

Abstract: A case is described of candidamicosis of the lungs
          erroneously diagnosed as infiltrative tuberculosis.
          Treatment with antibiotics (penicillin, streptomy-
          cin, and biomycin) caused a sharp deterioration;
          the patient died from yeast sepsis. The problem
          of differential diagnosis of yeast pneumonia is set
          forth. The isolation of the fungus in a Sabouraud's
culture medium without its simultaneous discovery in a native

          Iz protivotuberkuleznogo dispansera No.13 (zav. stantsionarnym
Card 1/2 otdeleniyem Ye. I. Yanov), patologoanatomicheskogo otdeleniya
          bol'nitsy imeni Botkina (nauchnyy konsul'tant N.A.Krayevskiy) i
mikologicheskogo otdela Tsentral'nogo kozhno-venerologicheskogo instituta

TEPLITSKAYA, Ye.S.; MALAYA, L.P.; MIRGORODSKAYA, A.K.; SHEYKO, Z.A.;
KOGAN, TS.L.; OSIPOVA, Ye.S.; GIRGORASH, N.G.; PANKRATOVA, V.S.;
GORBACHEVA, L.Ye.

Species of dysentery pathogens encountered in 1959 in certain regions
of Dnepropetrovsk Province and their sensitivity to the dysentery
bacteriophage and antibiotics. Vrach. delo no.9:116-118 S '61.
(MIRA 14:12)

(DNEPROPETROVSK PROVINCE—SHIGELLA)
(BACTERIOPHAGE)   (ANTIBIOTICS)

KHUDAYNAZAROV, O.; KOGAN, V.

Bitumens in the Gaurdak sulfur deposit. Izv. AN Turk. SSR no.5:
76-77 '58.   (MIRA 11:12)

1. Institut geologii AN Turkmenskoy SSR.
              (Gaurdak--Bitumen)

KOGAN, V., inzhener.

Shortcomings of a textbook on heat engineering and furnaces.
("Heat engineering and furnaces in the building materials industry."
V.A.Kitaitsev, R.M. Gurvich, I.V. Korol'kov. Reviewed by V.Kogan).
Strol.mat. izdel.i konstr. no.6:31-32 Je '55.   (MIRA 9:1)
    (Heat engineering)   (Furnaces)   (Kitaitsev, V.A.)
    (Gurvich, R.M.)   (Korol'kov, I.V.)

MALYUGA, V., inzh.; KOZHEVNIKOV, N., inzh.; KOGAN, V., inzh.

Lightweight exterior elements using plastic. Prom.stroi.i
inzh.soor. 4 no.5:32-38 S-O '62.   (MIRA 16:1)
        (Plastics)   (Building materials)

MINKIN, V.I.; OSIPOV, O.A.; KOGAN, V.A.

Dipole moments and absorption spectra of o-hydroxyaldehyde anils.
Dokl.AN SSSR 145 no.2:336-339 Jl '62.   (MIRA 15:7)

1. Rostovskiy-na-Donu gosudarstvennyy universitet. Predstavleno
akademikom B.A.Arbuzovym.
                    (Schiff Bases—Dipole moments)

5 (4)

AUTHORS: Zhdanov, Yu. A., Osipov, O. A.,   SOV/20-128-4-23/65
             Shelepin, O. Ye., Kogan, V. A.

TITLE: The Dipole Moments and Structure of Some Derivatives of
             Perinaphthindenone

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 128, Nr 4, pp 719 - 721
             (USSR)

ABSTRACT: Perinaphthindenone (I) and benzanthrone (IV) having weak or no
             characteristic ketone properties (Refs 1,2) form very solid
             complex compounds with protonic and aprotonic acids (Refs 2-4).
             This suggests a considerable polarity of the C = O bond. The
             instability of perinaphthindene and benzanthrene is expressed
             by their tendency of passing over into a stable oxidized state.
             The possible existence of a perinaphthindenyl cation, produced
             recently as a complex salt (Ref 5), had been presumed earlier
             (Ref 6) although the attempt at producing it had failed. The
             calculations of the binding energies in the perinaphthindene
             system by the method of molecular orbits showed that a cationoid
             state with a 12π-electron assembly is energetically advantage-
             ous for this system. The system is aromatic if it has this as-
Card 1/4   sembly (Ref 7). Thus, an intraionic binding character of $^{+}C - ^{-}O$

The Dipole Moments and Structure of Some Derivatives   SOV/20-128-4-23/65
of Perinaphthindenone

can be assumed (according to Ref 8) for the carbonyl compounds
of the perinaphthindene series where the negative charge is
localized on the oxygen, while the positive one is distributed
over the entire carbon system. An extensive analogy of the
properties of tropone (II) and perinaphthindenone permits the
reduction of its structure to that of perinaphthindenyl oxide
(Ia), using also the analogy with tropil oxide (IIa) (see Dia-
gram). For perinaphthindenone, a considerable dipole moment
(in the magnitude of 4D) can be expected, all the more so as
tropone has a moment between 4.17 and 4.30 D (Ref 9). To clar-
ify this problem, the authors measured the dipole moments of
perinaphthindenone and some of its derivatives. Table 1 pre-
sents the results showing that the dipole moment in dioxane is
reduced by 0.72 D by the introduction of bromine into the
nucleus of perinaphthindenone, and in benzanthrone by 1.19 D.
The introduction of a benzonal nucleus reduces it by 0.5-0.6 D.
On the other hand, the dipole moment increases by the intro-
duction of an oxy group into position 7 of perinaphthindenone
(V). An intramolecular cycle with a hydrogen bond is formed.
Thus, the negative charge of the carbonyl oxygen is stabilized,

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The Dipole Moments and Structure of Some Derivatives   SOV/20-128-4-23/65
of Perinaphthindenone

and the C - O group is taken out of the conjugation with the
ground skeleton of the molecule due to intracyclic exchange
processes via the hydrogen bond. In contrast to the above, the
tropolone has a dipole moment much too low (3.7 D) as compared
with the tropone. The value of the dipole moment of the complex
$C_{13}H_8OSbCl_5$ (8.50 D) permits assumptions as to its structure:
cationoid structure of perinaphthindenylium with a transition
of the electron configuration of the antimony atom into the
state d^2sp^3 (similar to $HSbCl_6$). The oxygen atom effects a
peculiar binding between the cationoid radical of perinaph-
thindenylium and the antimony atom as one of the addenda of
the latter, participating in the coordination sphere with only
one of its valences. There are 1 table and 11 references, 6 of
which are Soviet.

ASSOCIATION: Rostovskiy-na-Donu gosudarstvennyy universitet (Rostov-na-Donu
State University)

Card 3/4

KOGAN, V. A., Cand. Tech. Sci.   (diss) "Typographic Alloys of the System Lead - Antimony - Tin, Investigation of Their Properties and Development of Optimal Compositions for Polygraphic Industry," Moscow, 1961, 36 pp. (Moscow Polygraphic Inst.) 200 copies (KL Supp 12-61, 268).

KOGAN, V.A.; LYUSTERNIK, V.Ye.

Investigating the heat capacity and melting point of lead alloys.
Inzh.-fiz. zhur. 4 no.4:105-108 Ap '61.   (MIRA 14:5)

1. Institut poligraficheskoy promyshlennosti, g. Moskva.
        (Lead alloys--Thermal properties)

OSIPOV, O.A.; ARTEMOVA, V.M.; KOGAN, V.A.; LYSENKO, Yu.A.

Dipole moments of the complex compounds of tin, titanium, and zirconium tetrachlorides with dibasic acid esters. Zhur.ob.khim.
32 no.5:1368-1373 My '62.   (MIRA 15:5)
           (Complex compounds—Dipole moments)

OSIPOV, O.A.; MINKIN, V.I.; KOGAN, V.A.

Effect of the chemical structure of organic complex-forming
anions on the polarity of complex compounds. Zhur. fiz. khim.
36 no.4:889-894 Ap '62.   (MIRA 15:6)

1. Rostovskiy universitet.

(Complex compounds)

KOGAN, V.A. (Leningrad)

A practical method of making calculations for cylindrical shells.
Stroi.mekh.i rashch.soor. 4 no.5:35-39 '62.   (MIRA 15:11)
(Roofs, Shell)

KOGAN, V.A.; SEMIONOV, A.A.

Fluidity of ternary alloys in the system Pb - Sb - Sn. Lit.proizv.
no.9:32-34 S '62.
      (lead-antimony-tin alloys--Thermal properties)   (MIRA 15:11)
            (Liquid metals)

KOGAN, V.A., kand.tekhn.nauk; SEMIONOV, A.A., kand.tekhn.nauk

Shrinkage of alloys in the lead corner of the system
lead - antimony - tin. Metalloved. i term. obr. met.
no.11:31-36 N '62.

(MIRA 15:11)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut
poligraficheskoy promyshlennosti.
(Lead alloys—Testing)

KISIN, V. A.

... ... of ... ...
... metals of the fourth ...

... Referativnyy zhurnal, Khimiya, ...
... ... by Nauch. ... ... aspir ... ... ur-t, 1961,
...

Dipole moments were determined and cry... ... ... experiments were con-
... ... complex compounds of Ti, Sn and Zr chlorides, with several esters of
... ... acids. An increase in stability of ... ... with
... ... diethyl malonates, and meth... ... ... series
... certain propositions were a ... ...
... ... Author's abstract.

... ... 's note: Complete translation/

Card 1/1

KOGAN, V.A.; SEMIONOV, A.A. (Moscow)

Phase diagram of alloys of the lead-enriched system
lead - antimony - tin. Zhur. fiz. khim. 37 no.4:802-809
Ap '63.   (MIRA 17:7)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut poligrafi-
cheskoy promyshlennosti.

OSIPOV, O.A.; MINKIN, V.I.; KOGAN, V.A.

     Dipole moments and the structure of o-hydroxyaldehyde anils. Zhur.fiz.
khim. 37.no.7:1492-1499 Jl '63.   (MIRA 17:2)

1. Rostovskiy-na-Donu gousdarstvennyy universitet.

KOGAN, V.A.; OSIPOV, O.A.; MINKIN, V.I.; GORELOV, M.I.

Dipole moments and structure of inner-complex compounds of copper with aromatic Schiff bases. Dokl. AN SSSR 153 no.3: 594-596 N '63. (MIRA 17:1)

1. Rostovskiy-na-Donu gosudarstvennyy universitet. Predstavleno akademikom V.I. Spitsynym.

KOGAN, V.A.; OSIPOV, O.A.; GARNOVSKIY, A.D.

Compounds of thorium tetranitrates with salicylalaniline.
Zhur. neorg. khim. 9 no.2:494 F'64.   (MIRA 17:2)

1. Rostovskiy-na-Donu gosudarstvennyy universitet.

KANTOR, L.Ya., kand. tekhn. nauk; KOGAN, V.A., inzh.

New transmitter for three-program wire broadcasting. Vest. sviazi
24 no.10:5-8 O '64.
(MIRA 17:12)

L 27827-66   EWT(m)/EWP(t),ETI   IJP(c)   JD

ACC NR: AR6016194   SOURCE CODE.   UR/0058/65/000/011/D026/D026

AUTHOR: Osipov, O. A.; Semenova, I. M.; Kogan, V. A.; Minkin, M. I.; Sokolov, V. L.

TITLE: Infrared spectra of gallium, indium, titanium, and tin chlorides with some organic ligands

SOURCE: Ref. zh. Fizika, Abs. 11D203

REF SOURCE: Tr. Komis. po spektroskopii. AN SSSR, t. 3, vyp. 1, 1964, 76-83

TOPIC TAGS: spectrum analysis, chloride, IR spectrum, gallium, indium, titanium, tin

ABSTRACT: An infrared spectrum analysis was used for the study of the characteristics of interaction between gallium and indium chlorides with acetone, methylhexyl ketone, cyclohexanone, acetophenone, benzophenone, and some other oxygen-containing compounds. [Translation of abstract.]
[KP]

SUB CODE: 07/ SUBM DATE: none

Card 1/1 PB

MINKIN, V.I.; OSIPOV, O.A.; KOGAN, V.A.; SHAGIDULLIN, R.R.; TERENT'YEV, R.L.;
RAYEVSKIY, O.A.

Electronic and vibration spectra of anils of o-hydroxyaldehydes.
Zhur. fiz. khim. 38 no.7:1718-1727 Jl '64.

1. Rostovskiy gosudatstvennyy universitet.   (MIRA 18:3)

KOGAN, V.A.; OSIPOV, O.A.; MINKIN, V.I.; SOKOLOV, V.P.

Structure of titanium and tin complex compounds with some aromatic Schiff bases. Zhur. neorg. khim. 10 no.1:83-88 Ja '65. (MIRA 18:11)

1. Rostovskiy-na-Donu gosudarstvennyy universitet. Submitted July 24, 1963.

L 32760-66   EWT(m)/EWP(j)/T   IJP(o)   DS/WW/PM

ACC NR: AP6009896   SOURCE CODE: UR/0413/66/000/004/0087/0087

INVENTOR: Kogan, V. A.; Korobochkin, I. V.

ORG: none

TITLE: Humidity element for air and gas. Class 42, No. 179037 [announced by Scientific Research Institute of Agricultural Physics, Academy of Agricultural Sciences im. V. I. Lenin (Agrofizicheskiy nauchno-issledovatel'skiy institut Akademii Sel'skokhozyaystrennykh nauk)]

SOURCE: Izobretneiya, promyshlennyye obraztsy, tovarnyye znaki, no. 4, 1966, 87

TOPIC TAGS: air moisture, gas moisture, humidity element

ABSTRACT: An Author Certificate has been issued for a humidity element for air and gas. It contains a nonconductive base with comb-like electrodes and a moisture-sensitive coating. To increase both the stability and sensitivity of the element, the moisture-sensitive coating is made of a heat-treated organic semiconductor such as polyacrylonitrile. [LD]

SUB CODE: 13/   SUBM DATE: 11Jan65/

Card 1/1   BLG   UDC: 533.275.002.56

1. KOGAN, V.A.; PINES, B.YA.

22. USSR (600)

4. Metallurgical Analysis

7. Micro- method in the phase analysis of alloys. Dokl. AN SSSR 87, No. 6, 1952

9. Monthly List of Russian Accessions, Library of Congress, March, 1953. Unclassified.

21780

S/170/61/004/004/012/014
B125/B203

11.3956

AUTHORS: Kogan, V. A., Lyusternik, V. Ye.

TITLE: Study of specific heat and heat of fusion in alloys on the
            basis of lead

PERIODICAL: Inzhenerno-fizicheskiy zhurnal, v. 4, no. 4, 1961, 105-108

TEXT: The authors determined the true specific heats and heats of fusion
of the alloys mentioned in Table 1 between 20 and $500^{\circ}C$ in an adiabatic
calorimeter by the method of continuous heating of the alloy studied. The
study of the specific thermal capacity of the solid and liquid phases of
alloys of the system lead - antimony - tin is theoretically and practically
very interesting since these alloys are used more and more in machine
building, in the polygraphic industry, and as thermophores for heat
exchangers. Table 1 gives the chemical compositions of the alloys in-
vestigated. The rate of heating in these processes was 3 - 3.5 deg/min.
In all experiments, the specific heat, c, slightly decreased in the range
of $20-150^{\circ}C$, and then increased rapidly up to the melting point (a sharp
peak of the specific heat occurs in melting). In the liquid alloy, the

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Study of specific heat...

S/170/61/004/004/012/014
B125/B203

specific heat decreased rapidly from the melting point. The complicated character of temperature dependences of the specific heat near the melting point, found for all alloys and particularly for alloy 1 (Fig. 1), was due to the existence of several components in the alloy. The additive law of specific heats (Neumann-Kopp's rule) satisfied quite well the solid and liquid states of the alloy, but for the liquid phase this law agreed with the experiment only at a considerable distance from the melting region, which was particularly distinct in alloy no. 1. The increase in temperature is much delayed when the melting begins (in the passage through the solidus). For calculating the heat of fusion of the alloy q_{fus} (Table 2), the energy Q (kcal/min) supplied to the specimen is multiplied with the duration $\Delta\tau_{fus}$ (in minutes) determined from the melting thermogram. The fraction of heat used for heating the pot and the calorimeter (having the specific heat A (kcal/deg)) must be taken into account. Thus, $q = (Q\Delta\tau_{fus} - A\Delta t_{fus})/G$, where Δt_{fus} denotes the temperature range $t_{liq} - t_{sol}$, and G the weight of the alloy in g. The determination of the heat amount required for heating the liquid alloy by $\sim 50°C$ above the

Card 2/7

Study of specific heat...

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S/170/61/004/004/012/014
B125/B203

melting point is interesting for practical purposes. This amount of heat is determined like q_{fus} from the melting thermogram. The authors then calculated the heat content i and the mean specific heat from 20 to $t^{\circ}C$ on the basis of data of true thermal capacity. $i = \int_{20}^{t} c \, dt$ (2) holds for the alloy in kcal/kg. This integral is determined by graphic integration of the curves in Fig. 1. The mean specific heat (Tables 2,3) is calculated from the formula $c_m = i/(t - 20)$ (3), i being determined from (2). The value of i for the temperature t can be determined from (3); c_m is taken from Table 3 for the temperature t. The authors thank A. A. Semionov for valuable advice. There are 2 figures, 3 tables, and 2 Soviet-bloc references.

ASSOCIATION: Institut poligraficheskoy promyshlennosti g.Moskva (Institute of Printing Trade, Moscow)

SUBMITTED: July 29, 1960
Card 3/7

O. 1

KOGAN, Vladimir Borisovich; FRIDMAN, Viktor Mikhaylovich; KAFAROV,
    Viktor Vyacheslavovich; SUTKOVA, T.I., red.izd-va; GALIGANOVA,
    L.M., tekhn. red.

[Handbook on solubility]Spravochnik po rastvorimosti. Moskva,
Izd-vo Akad. nauk SSSR. Vol.2. [Ternary multicomponent systems]
Troinye, mnogokomponentnye sistemy. Book 1. 1963. 943 p.
                                          (MIRA 16:1)
1. Moscow. Vsesoyuznyy institut nauchnoy i tekhnicheskoy informa-
tsii.
        (Systems (Chemistry)) (Solubility)

GUREVICH, D.M.; KOCAN, V.A.; RATINER, M.M.

Program controlled four-spindle drilling machine. Biul.tekh.-ekon. inform.Gos.nauch.-issl.inst.nauch.i tekh.inform 17 no.11:45-46 N '64.
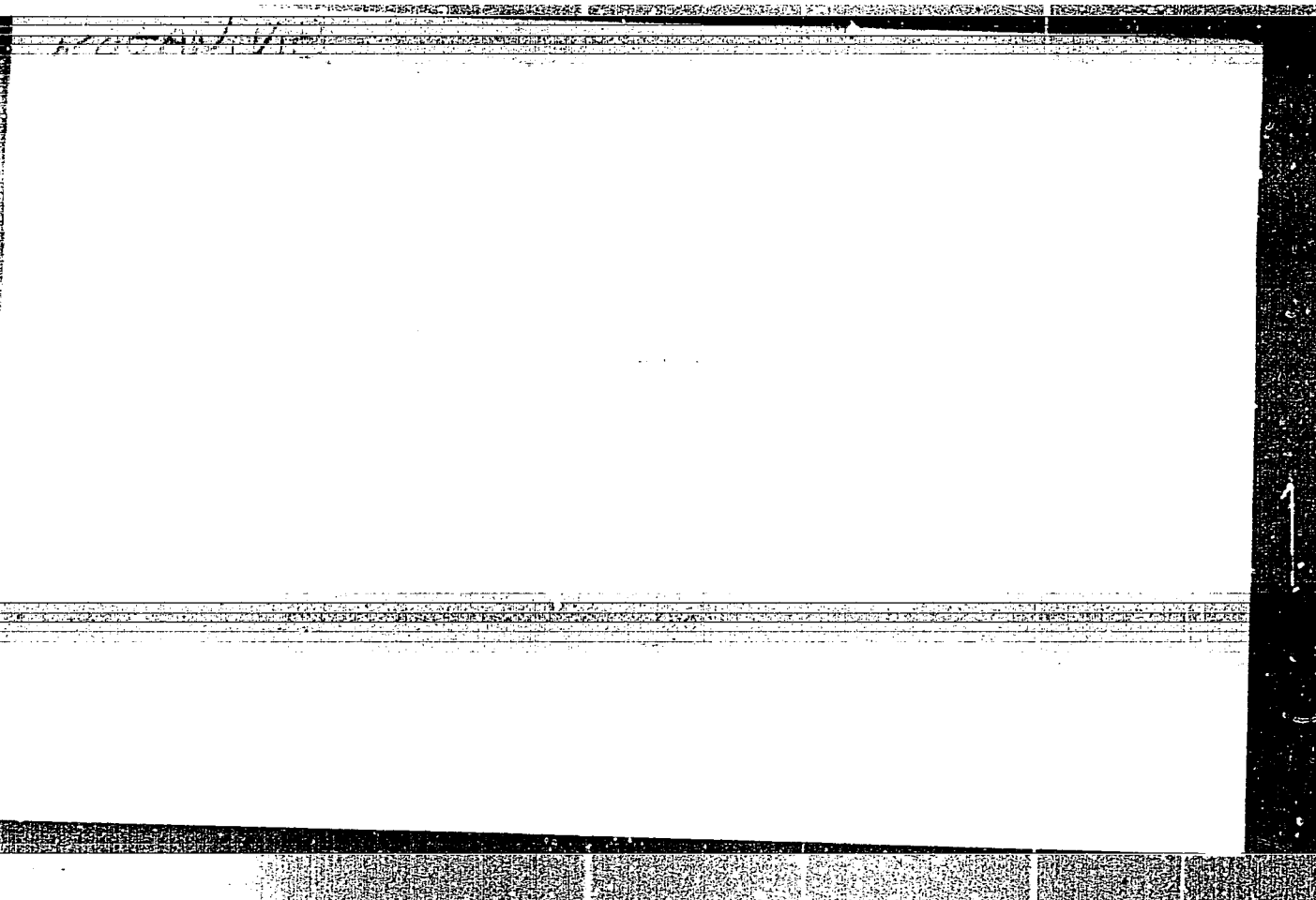
(MIRA 18:3)

KOGAN, V. B.

"Separation of Vapor-Liquid Mixtures." Thesis for degree of Cand. Technical Sci. Sub 23 Jan 50, Moscow Inst of Fine Chemical Technology imeni M. V. Lomonosov.

Summary 71, 4 Sep 52, Dissertations Presented for Degrees in Science and Engineering in Moscow in 1950. From Vechernyaya Moskva, Jan-Dec 1950.

USSR/Chemistry - Electrolysis   FD-154 /

Card 1/1   : Pub. 50-4/25

Author   : Kogan, V. B., Cand Tech Sci; Ovsepyan, R. R.

Title   : Internal leakages of current at electrolysis installations

Periodical   : Khim. prom., No 8, pp 46:-69 (15-21), Dec 1954

Abstract   : Discusses the theory of losses of current in electrolytic cells and
                   recommends measures for reducing them. Four references, 2 USSR, one
                   of them since 1940. Five figures, 6 tables.

Institution   :

Submitted   :

Card 1/2   : Pub. 147 - 4/22

Authors   : Kogan, V. B., and Fridman, V. M.

Title   : Method of calculating phase equilibriums of binary liquid-vapor systems

Periodical   : Zhur. fiz. khim. 28/11, 1889-1895, November 1954

Abstract   : A new method for the calculation of phase equilibriums of binary liquid-
vapor systems is introduced. The ...
... tion of vapor ...
... /3 ...
... dilation and formulation of a new ...
proper accuracy and simplicity of calculation, ... Seven
references: 5-German; 1-English ... -45 . (... -... , ... les; graph.

Institution : State Institute of Applied Chemistry, Leningrad

Submitted   : December 29, 1953

KOGAN, V.B.

Connection between solubility and relative volatility. Zhur.fiz. khim. 29 no.8:1470-1476 Ag '55. (MLRA 9:3)

1. Institut prikladnoy khimii, Leningrad.
(Solution (Chemistry)

KAGAN V. B.

USSR/Chemistry - Physical chemistry

Card 1/1   Pub. 147 - 6/22

Authors   : Kogan, V. B.

Title   : The properties of tri-component azeotropic systems formed by components of limited mutual solubility

Periodical : Zhur. fiz. khim. 29/11, 1984-1988, Nov 1955

Abstract   : A study of the properties of binary and tri-component azeotropic systems showed the existence of a . . . . and relative . . . . . . of . . . mixtures. It is shown that tri-component azeotropic . . . . . relative-

Institution : Institute of Applied Chemistry, Leningrad

Submitted : December 31, 1954

KOGAN, V.B.

USSR/Thermodynamics. Thermochemistry. Equilibria. Physico-Chemical B-8
        Analysis. Phase Transitions.

Abs Jour : Ref Zhur - Khimiya, No 8, 1957, 26178

Author   : V.B. Kogan, I.V. Deyzenrot, T.A. Kul'dyayeva, V.M. Fridman
Title   : Solubility in Systems Consisting of Methanol, Water and Nor-
           mal Paraffin Hydrocarbons.

Orig Pub : Zh. prikl. khimii, 1956, 29, No 9, 1387-1392

Abstract : The mutual solubility (MS) in binary systems consisting of
           methanol I and n-hexane II, n-heptane III n-octane and n-
           -nonane, as well as in ternary systems containing water
           besides the above mentioned components was studied at 2
           to 45°. The MS of methanol, water and normal hydrocarbons
           at temperatures between 20 and 10° decreases with the in-
           crease of the molecular weight of the hydrocarbon and changes
           very little with the temperature drop within the range of
   from 20 to 10°.

Card   : 1/1   State OLRB Inst. Applied Chems

KOGAN...Vladimir..Borisovich; FRIDMAN, Viktor Mikhaylovich; KAFAROV, V.V.,
doktor tekhn.nauk, prof., redaktor; TOMARCHENKO, S.L., redaktor;
LEVIN, S.S., tekhnicheskiy redaktor; ERLIKH, Ye.Ya., tekhnicheskiy
redaktor.

[Manual on equilibria between fluids and vapors in binary and
multicomponent systems] Spravochnik po ravnovesiiu mezhdu
zhidkost'iu i parom v binarnykh i mnogokomponentnykh sistemakh.
Pod red. V.V.Kafarova. Leningrad, Gos.nauchno-tekhn.izd-vo khim.
lit-ry, 1957. 497 p.   (MIRA 10:11)
            (Systems (Chemistry))   (Chemical equilibrium)
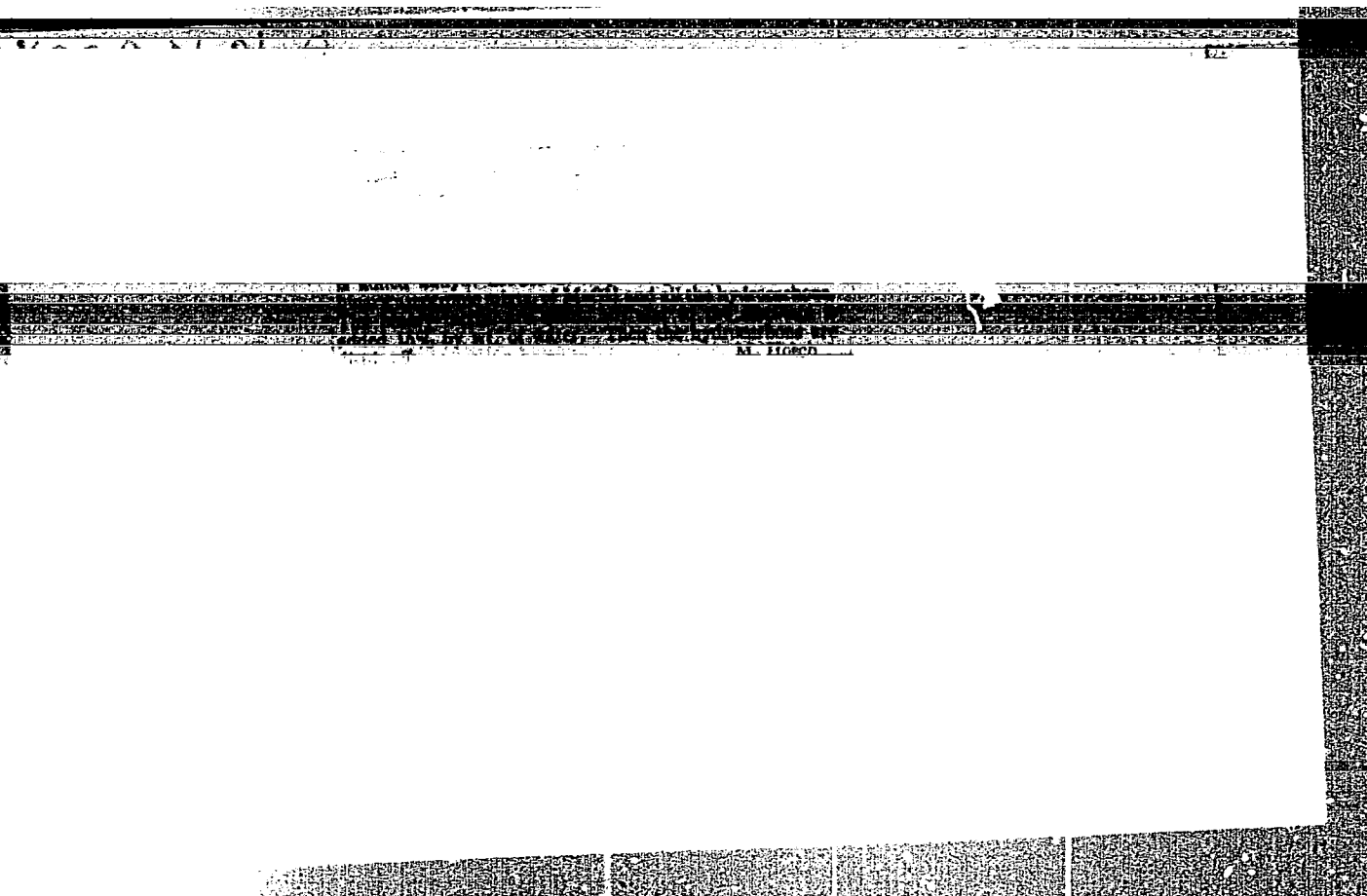
KOGAN, V.B.

On I.N. TSinaris' remark on V.V. Kafarov and L.A. Gordievskii's paper entitled "Basic principles of selecting a solvent for the separation of azeotropic systems by means of extractive distillation". Zhur.prikl. khim. 30 no.3:498-500 Mr '57.   (MIRA 10:5)
        (Azeotropy) (Distillation, Fractional)

Kogan, V.B

KOGAN, V.B.; FRIDMAN, V.M.

Determining the composition of tricomponent systems by measuring one
property. Zhur.prikl.khim. 30 no.8:1141-1147 Ag '57. (MIRA 11:1)

1.Gosudarstvennyy institut prikladnoy khimii.
(Systems (Chemistry))

AUTHORS: Gel'perin, N. I., Doctor of Technical Sciences   64-58-2-6/16
               Kogan, V. B., Candidate Technical Sciences

TITLE: Mechanical Removal of Liquid by Secondary Steam in Chemical
               Evaporators (Mekhanicheskiy unos zhidkosti vtorichnym parom
               v vyparnykh apparatakh)

PERIODICAL: Khimicheskaya Promyshlennost', 1958, Nr 2, pp. 32-37 (USSR)

ABSTRACT: In the present paper the mechanism of the liquid removal in
               boiling, as well as the influence of the construction and the
               operation mode if the chemical evaporator are investigated;
               a method of approximation for the determination of the dimensions
               of the steam chamber is worked out. Schematic representations of
               the apparatus used in the investigations are given in two
               constructional modifications. They consists of a pipe of a
               length of 1000 mm which is divided into eight segments; it is
               electrically heated and has 4 little tubes arranged at various
               heights for steam take-off. The secondary steam condenses in the
               lowest segment, while the removal of it is determined by the
Card 1/4   determination of the content of substance in the segment above

Mechanical Removal of Liquid by Secondary Steam in Chemical Evaporators

it. The intensity of heat and the heating temperature, the operational pressure, the kind of liquid and its concentration, as well as the height of the liquid column were changed in the course of the experiments. Water was evaporated as well as aqueous solutions of salts at various concentrations: KCl (to 25%), $K_2Cr_2O_7$ (to 20%), K_2CrO_4 (to 25%), $NaNO_3$ (to 40%) and Na_2SO_4 (to 25%). From a diagram of the function removal height of steam space it can be seen that the latter can be divided into three zones: that filled with the boiling liquid, that of the thrown up liquid, and that of the thrown-up splashes. The results of observation coincide with those by M. D. Panasenko (ref 1); it was found that most of the removal takes place by the throwing-up of the liquid and not, as is often assumed, by the throwing-up of the liquid drops. From a mathematical deduction can be seen that the dynamic liquid level of non-foaming liquids is a function of the relative steam velocity. The results of the experiments on the changes of the dynamic liquid level in dependence on heat intensity, heated surface and pressure are graphically represented; here

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Mechanical Removal of Liquid by Secondary Steam in Chemical   64-58-2-6/16
Evaporators

it was found that of water and salt solutions no greater
values are obtained for the latter. The linear function of
relative steam velocity related to the diameter of the pipe
coincides with the observations by Peterson (ref 2). An
explanation is given for the absence of a remarkable effect
of the physico-chemical properties of liquids. From a
mathematical deduction can be seen that the height reached by
the liquid projected into the steam space is directly proportional
to the volume stress of the evaporation level. The authors give
mathematical deductions as well as graphical representations of
data for the determination of the dynamic liquid level and the
relative height of the steam space, corresponding to the zonal
limits, from greater amounts of thrown-up liquid and splashes;
from the final formula can be seen that the relative height of
the steam space depends on the constructional dimensions and
the operation mode of the chemical evaporator, the conditions
of circulation, as well as on the above mentioned volume stress.

Card 3/4

Mechanical Removal of Liquid by Secondary Steam in Chemical   64-58-2-6/16
Evaporators

        There are 12 figures and 3 references, 2 of which are Slavic.

AVAILABLE: Library of Congress

        1. Evaporators--Design   2. Evaporators--Performance   3. Liquids
        --Separation   4. Steam--Performance

Card 4/4

Kogan V. B.

GEL'PERIN, N.I., doktor tekhn. nauk, prof.; KOGAN, V.B., kand. tekhn. nauk.

Mechanical entrainment of liquid by secondary vapor in evaporators.
Khim. prom. no.2:96-101 Mr '58.
(MIRA 11:5)
(Evaporating appliances)

AUTHOR: Kogan, V. B.   76-32-5-23/47

TITLE: A Method for Testing and Predicting Data on the Phase Equi-
               librium in Multicomponent Systems. I. (Metod proverki i pred-
               skazaniya dannykh o fazovom ravnovesii v mnogokomponentnykh
               sistemakh I.)

PERIODICAL: Zhurnal fizicheskoy khimii, 1958, Vol. 32, Nr 5, pp. 1095-
               -1102 (USSR)

ABSTRACT: An extremely convenient method for binary systems was describ-
               ed by Redlich and Kister (Ref 2) while ternary and multicom-
               ponent systems were little elaborated; Steinhauser and White
               (Ref 3) used the equation by Dyngem-Margules, which, however,
               was not practically applied and still has disadvantages in its
               present, modified form. The method proposed by Krishnamurti
               and Venkata Rao (Ref 16) has only a restricted field of appli-
               cation; in this paper a method is proposed which is free of
               the assumption of a random certain form of the function of ex-
               cess free mixing energy on the composition. Ternary systems
               are given as examples, with the change of the composition be-
               ing represented according to the method of the secant and the
               cross section, as the latter is especially important in ex-
Card 1/2   tractive rectification processes. From the given types of com-

A Method for Testing and Predicting Data on the Phase Equi-   76-32-5-23/47
librium in Multicomponent Systems.I.

putation can, among other, be seen that an analogous equat-
ion to that by Redlich and Kister is obtained and from it then
an equation for the checking or the prediction of the data on
the equilibrium in binary systems without having to compute
the activity coefficients of each constant. For reasons of
illustration this method is then used in the systems: ethanol-
-dichlorethane-hensene; acetone-methanol-water, and acetone-
-chloroform-methylisobutylketon; graphical and tabular results
are given. From the comparisons of the results of the works
already carried out for the_se determinations can be seen
that the mentioned equations can be applied. There are
4 figures, 1 table, and 26 references, 5 of which are Soviet.

ASSOCIATION: Institut prikladnoy khimii,Leningrad
                 (Leningrad,Institute of Applied Chemistry)

SUBMITTED: January 28, 1957
                 1. Organic compounds--Theory   2. Chemical equilibrium

Card 2/2

5(3)

AUTHORS: Kogan, V.B., Fridman, V.M. and Romanova, T.G.

TITLE: The Separation of Mixtures of Alcohols and Hydrocarbons by the Method of Extraction (Razdeleniye smesey spirtov i uglevodorodov metodom ekstraktsii)

ABSTRACT: Mixtures of alcohols and hydrocarbons are obtained in some technological processes, and this necessitates finding an effective method of their separation. In the present investigation the authors studied a possibility of such a separation by means of extraction. Ethylene glycol was chosen as a solvent. To estimate quantitatively the effectiveness of separation by this method, data on equilibria between the liquid phases in the system alcohol – hydrocarbon – ethylene glycol were necessary. The system consisting of butyl alcohol, heptane and ethylene glycol was taken as an example. Data on the composition and specific weight of saturated solutions in this system were compiled in Table 1, these data were used for plotting the curves of relationship in Figure 1, and a triangular diagram of equilibria, pictured in Figure 2, was drawn. The

Card 1/2

SOV/80-32-4-25/47

The Separation of Mixtures of Alcohols and Hydrocarbons by the Method of
Extraction

composition of equilibrium phases and of a mixture at a critical
point, found by Alekseyev's method, are shown in Table 2. The
analysis of the results has shown that the application of pure
ethylene glycol, as well as its aqueous solution ensures a
complete separation of initial mixtures after a single or double
rinsing. Pure hydrocarbon is obtained directly in the process of
extraction; alcohol can be separated from the lower layer by means
of mere rectification.
There are 3 graphs, 3 tables and 3 Soviet references.

SUBMITTED: December 21, 1957

Card 2/2

5(4)

AUTHORS: Kogan, V. B., Tolstova, T. S.

TITLE: Properties of Tricomponent Azeotropic Mixtures of Components
               With Limited Mutual Solubility II (O svoystvakh trekhkom-
               ponentnykh azeotropnykh smesey, obrazovannykh komponentami
               s ogranichennoy vzaimnoy rastvorimost'yu. II)

PERIODICAL: Zhurnal fizicheskoy khimii, 1959, Vol 33, Nr 2,
               pp 276 - 278 (USSR)

ABSTRACT: In work reported in a previous paper (Ref 1) it was found
               that in regard to these particular mixtures the relative
               content of each component with poorer mutual solubility
               must be greater than in the case of binary azeotropic
               mixtures. Since another paper (Ref 2) gave data which were
               not in agreement with this observation the authors inves-
               tigated the following systems: alcohol - water - trichloro-
               ethylene; allyl alcohol - water - hexane; isopropanol - water-
               nitromethane; and hexyl alcohol - water - benzene. The ex-
               periments utilized a column with an efficiency of 45 theo-
               retical plates. The composition of the binary azeotropes
Card 1/2   propanol-water and propanol-trichloroethylene was determined

Properties of Tricomponent Azeotropic Mixtures of   SOV/76-33-2-6/45
Components With Limited Mutual Solubility II

from the refractive index obtained using a IRF-22 refracto-
meter. The experimental results obtained (Tables 2,3) show
that the data given in reference 2 are incorrect and that
the principle mentioned above holds also for the systems
investigated here. In doing so the possibility of applying
the relationship between the composition of binary and
ternary azeotropic mixtures to the testing of experimental
data was reconfirmed. There are 3 tables and 4 references,
3 of which are Soviet.

ASSOCIATION: Gosudarstvennyy institut prikladnoy khimii Leningrad (State
               Institute of Applied Chemistry, Leningrad)

SUBMITTED: June 25, 1957

Card 2/2

5 (4)
AUTHORS: Kogan, V. B., Safronov, V. M.   SOV/76-33-6-28/44

TITLE: A Method of Calculating the Equilibrium Between Liquid and
                Vapor in Three-component Systems II (Motod rascheta ravnovesiya
                mezhdu zhidkost'yu i parom v trekhkomponentnykh sistemakh. II)

PERIODICAL: Zhurnal fizicheskoy khimii, 1959, Vol 33, Nr 6,
                pp 1353-1359 (USSR)

ABSTRACT: On the basis of results obtained in a previous paper (Ref 13),
                a graphoanalytical method of calculating the equilibrium
                between liquid and vapor of three-component systems from data
                of binary systems was worked out. The method is based on the
                following: To the same extent as the third component is added
                to the binary system, the coefficient of relative volatility
                changes decreasingly with the change in relative concentration
                of the components forming the binary system, and tends to a
                terminal value $X_3 = 1$ for which γ_1/γ_2 is constant (γ_1 and γ_2 =
                activity coefficients of the first and second components)
                and the maximum possible change of relative volatility of the
                first and second components (caused by the third component)
                is attained. By the data on the equilibrium of three binary

Card 1/3

A Method of Calculating the Equilibrium Between   SOV/76-33-6-28/44
Liquid and Vapor in Three-component Systems II

systems generated by the components of a ternary system, the
position of the straight line can be determined which represents
the activity coefficients of two arbitrary components as a
function of the   composition (at a concentration of the
third component equal to zero or unity. By equation (1)
(Ref 13), the function of the mean change in relative
volatility on the concentration of the third component can
be determined: $\lg(\gamma_1/\gamma_2)_{mean} = (Q_{13} - Q_{23}) / (1 - X_3)$. The
change in relative volatility at any concentration of the
third component can be regarded as a change which occurs at
$X_3 = 1$. The method is illustrated by the system acetone-
methanol-water. To check the method of calculating, it was
also applied to the systems butane-butene-furfurol, isobutane-
butene-furfurol, methanol-carbon tetrachloride-benzene,
benzene-cyclohexane-isopropanol, acetone-chloroform-
methylisobutylketone, heptane-methanol-toluene, methylethyl-
ketone-heptane-toluene. A comparative table of the vapor
compositions calculated by the described method, and determined
by experiment, of the systems acetone-methanol-water,

Card 2/3

A Method of Calculating the Equilibrium Between   SOV/76-33-6-28/44
Liquid and Vapor in Three-component Systems II

        methanol-carbon tetrachloride-benzene, and methylethylketone-
        heptane-toluene is given. There are 4 figures, 1 table, and
        14 references, 4 of which are Soviet.

ASSOCIATION: Gosudarstvennyy institut prikladnoy khimii, Leningrad
              (State Institute of Applied Chemistry, Leningrad)

SUBMITTED: November 30, 1957

Card 3/3

5 (4)
AUTHORS: Kogan, V. B., Fridman, V. M.,   SOV/76-33-7-12/40
             Romanova, T. G.

TITLE: Phase Equilibria in Systems Formed by Paraffin Hydrocarbons
             and Alcohols of the Aliphatic Series

PERIODICAL: Zhurnal fizicheskoy khimii, 1959, Vol 33, Nr 7, pp 1521 - 1525
             (USSR)

ABSTRACT: Among other methods, hydrogenation of aliphatic esters yields
             aliphatic alcohols, thus forming mixtures of the alcohols with
             hydrocarbons. For this reason, the physico-chemical properties
             of these mixtures are important. The authors investigated the
             liquid-vapor phase of the systems butanol (I) - heptane (II),
             (I) - octane (III), and (I) - nonane (IV). Data on the initial
             substances are given (Table 1). The above equilibrium was in-
             vestigated by means of a circulation apparatus (Fig 1), and
             the composition of the samples (liquid and condensate of the
             vapor phase) was simultaneously determined by the method
             (Ref 11). The results (Tables 2-4) showed that there was a lin-
             ear dependence between the logarithm of the ratio of activity
             coefficients of the components, on the one hand, and the com-
Card 1/2   position, on the other, i.e. the solutions were almost regular.

Phase Equilibria in Systems Formed by Paraffin
Hydrocarbons and Alcohols of the Aliphatic Series   SOV/76-33-7-12/40

Explanation of data available in publications on the equi-
librium between methanol (V) and ethanol (VI), on the one hand,
and paraffin hydrocarbons (liquid-vapor), on the other, leads
to the conclusion that these solutions are almost regular as
well. The degree of deviation from Raoult's law is reduced by
an increase in the molecular weight of the alcohol (for the
system with (V), the constant A - 0.970, with (VI), A - 0.905,
and with (I), A - 0.710). Calculation of the composition of
the azeotropic mixture of the system isopropanol - heptane
(the experimental part was carried out by T. S. Tolstova) in-
dicates that the resultant dependence of the above data on the
equilibrium in the systems "aliphatic alcohol - paraffin hydro-
carbon" permit predictions of the phase equilibrium. There are
4 figures, 4 tables, and 13 references, 3 of which are Soviet.

ASSOCIATION: Gosudarstvennyy institut prikladnoy khimii, Leningrad (Leningrad
               State Institute of Applied Chemistry)

SUBMITTED: December 18, 1957
Card 2/2

S/080/60/033/007/015/020
A003/A001

AUTHORS: Ogorodnikov, S. K., Kogan, V. B., Nemtsov, M. S.

TITLE: The Properties of Binary Systems Formed by C_5 Hydrocarbons (Communication 1)

PERIODICAL: Zhurnal prikladnoy khimii, 1960, Vol. 33, No. 7, pp. 1599-1607

TEXT: The development of an industrial method for obtaining isoprene by dehydration of isopentane necessitates the separation of mixtures of C_5 hydrocarbons. Data were obtained on the equilibrium between liquid and vapor in binary systems formed by C_5 hydrocarbons of various structure and also on their ability to form azeotropic mixtures with each other. The refractive index (n_D and n_C) was determined by a ИРФ -23 (IRF-23) refractometer with an accuracy of $\pm 2 \cdot 10^{-5}$ in differential measurements. The boiling points of pure substances and their mixtures were determined in a Sventoslavskiy's ebulliometer (Ref. 4) with an accuracy of $\pm 0.05 °C$. It was shown that in the binary systems formed by isoprene with n-pentane, isopentane, isopropylethylene, methylethylene and trimethylethylene, and isopentane with isopropylethylene, and n-pentane with trimethylene, only in the n-pentane-isoprene system an azeotropic mixture

Card 1/2

S/080/60/033/007/015/020
A003/A001

The Properties of Binary Systems Formed by C_5 Hydrocarbons (Communication 1)

is formed. Literature data on the formation of other azeotropic mixtures are incorrect. Based on the data on the properties of the azeotropic mixture n-pentane-isoprene and on the boiling point of the mixtures, it was shown that in systems composed of C_5 hydrocarbons small positive deviations from Raoult's law are observed. The deviations increase in the series olefin-diene, paraffin-olefin, paraffin-diene. The deviations from the additivity of the refractive index and the density of the solutions change in the same direction. The dependence of the activity coefficients of the components on the composition in systems formed by C_5 hydrocarbons is sufficiently well expressed by equations of the theory of regular solutions. The deviations from the perfect case in the systems olefin-diene and paraffin-olefin are very small. In calculations for engineering purposes these systems can be considered as perfect. There are 8 tables, 2 graphs and 10 references: 3 Soviet, 3 English, 2 American and 2 Belgian.

ASSOCIATION: Vsesoyuznyy nauchno-issledovatel'skiy institut sinteticheskogo kauchuka (All-Union Scientific Research Insitute of Synthetic Rubber)
SUBMITTED: December 26, 1959

Card 2/2

5. 1160   2209, 1375, 1273

25652
S/080/60/033/012/006/024
D209/D305

AUTHORS: Ogorodnikov, S.K., Kogan, V.B., and Nemtsov, M.S.

TITLE: Liquid-vapor equilibrium in binary systems composed
              of methanol and hydrocarbons

PERIODICAL: Zhurnal prikladnoy khimii, v. 33, no. 12, 1960,
              2685 - 2693

TEXT: The present work is a continuation of earlier investigations
in which it was shown that mixtures of some C_5 hydrocarbons cannot
be separated by straight fractionation due to the low values of
their corresponding coefficients of relative volatility (α). The
authors have now decided to study the possibility of increasing
the relative volatility of hydrocarbons adding to the latter sub-
stances acting as separating agents in azeotropic and extractive
rectification. Among possible separating agents, polar compound
received greatest attention. Althought the use of methanol for the
above purpose has been discussed earlier, very little has been

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S/080/60/033/012/006/024
D209/D305

Liquid-vapor equilibrium in ...

written about binary systems consisting of methanol and hydrocar-
bons having an equal number of carbon atoms (isologs). The liquid-
vapor equilibrium was studied using a modified Gillespie apparatus,
in which the thermocouple pocket was placed directly in the sepa-
rator. For control purposes some of the experiments were conducted
in Bushmakin apparatus devised by I.N. Bushmakin (Ref. 16: Z. P.
Khim v. 32, no. 4, 1959, p. 812) and the boiling point of the cor-
responding mixtures was measured in the Sventoslavskiy ebulliome-
ter at a pressure of 760 mm Hg. The experimental data was then ve- $\mathcal{X}$
rified thermodynamically using the Redlich-Kister method and the
relation of

$$\log \frac{\gamma_{methanol}}{\gamma_{hydrocarbon}} \quad (\gamma = \text{activity coefficient})$$

to liquid composition are represented graphically for paraffins,
olefines and dienes. The curves obtained confirm that the experi-
mental results are in agreement with a condition stipulated by the
Redlich-Kister equation, i.e. the areas between the upper and low-

Card 2/4

25652
S/080/60/033/012/006/024
D209/D305

Liquid-vapor equilibrium in ...

er part of the log $\gamma M/\gamma H = f(x)$ and absclsse are equal (where x is the methanol content im the liquid phase). For methanol-paraffin and methanol-diene systems the difference between the two areas is almost negligible but for the methanol olefine system this diffe- rence is considerably bigger. This is probably caused by inaccura- cy of measurements in high methanol concentrations. The direct re- lation is shown between activity coefficients of components and composition of methanol-olefine systems. From the practical point of view, alues obtained for one hydrocarbon may be utilized for de- terminir the properties of systems containing its isomers and ho- mologues. The second important point which follows from this re- sult is that the addition of methanol to oliphatic hydrocarbon mix- tures cannot practically improve the conditions of separation of isomers and homologues as compared with ordinary rectification. Maximum deviation from ideal conditions is shown by the comparati- vely high absolute values of log $\gamma M/\gamma H$ and S-shape of the corres- ponding curves in the methanol-paraffin system. Straightening of the curve and reduction of log $\gamma M/\gamma H$ values for olefinic and diene

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S/080/60/033/012/006/024
D209/D305

Liquid-vapor equilibrium in ...

hydrocarbons indicates that the addition of methanol to those sys-
tems should increase the relative volatility of the hydrocarbon.
However, in general, it may be said that methanol is not suitable
as a separating agent for the rectification of isomer mixtures of
the same class. There are 6 figures, 10 tables and 21 references:
10 Soviet-bloc and 11 non-Soviet-bloc. The 4 most recent referen-
ces to the English-language publications read as follows: Chu Ju
Chin, R.I. Getty, L.F. Brennecke, R. Paul: Distillation equilibrium
data N.I., 1950; G. Scatchard, L.B. Ticknor: J. Am. Chem. Soc. 74,
13, 3724, 1952; O. Redlich, A.T. Kister: Ind. Eng. Chem. 40, 2, 345,
1948; G. Scatchard, S.E. Wood, I.M. Mochel: J. Am. Chem. Soc., 68,
10, 1957, 1946.

ASSOCIATION: Vsesoyuznyy nauchno-issledovatel'skiy institut sinte-
ticheskogo kauchuka im. S.V. Lebedeva (All-Union Sci-
entific Research Institute of Synthetic Rubber, im.
S.V. Lebedev)

SUBMITTED: April 4, 1960

Card 4/4

KOGAN, V.B. (Leningrad)

Method of testing liquid - vapor equilibrium data in ternary systems
with a nonvolatile component. Zhur. fiz. khim. 34 no.12:2834-2837
D '60.   (MIRA 14:1)

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